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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,843	02/27/2004	Hector M. Ribas	2298	8462

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EXAMINER	
ALIA, CURTIS A	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
03/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/789,843	RIBAS ET AL.	
	Examiner	Art Unit	
	Curtis A. Alia	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 07 December 2007.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-7 and 9-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-7 and 9-18 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendment filed on blah has been entered. Claim 8 has been cancelled and claims 1, 9 and 14 have been amended. Claims 1-7 and 9-18 are still pending in this application, with claims 1 and 9 being independent.

Allowable Subject Matter

1. The indicated allowability of claims 6, 8, 14 and 16 is withdrawn in view of the newly discovered reference(s) to da Silva and Ishikawa. Rejections based on the newly cited reference(s) follow.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. Note: Objection to figure 1 still stands, as a mobile communications network comprising MS, BTS, BSC and MSC units in the configuration shown is well established prior art.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga (previously cited US 2003/0218974) in view of Stilwell (previously cited US 6,137,773), da Silva (newly cited "Interpreting CDMA Measurements," hereinafter "da Silva") and Love et al. (previously cited US 2004/0219920).

Regarding claim 1, Zuniga discloses a method comprising determining a reverse noise floor (see paragraph 26, lines 1-4), and obtaining reverse noise measurements (see paragraph 13, lines 1-5).

Zuniga does not explicitly teach that the method further comprises obtaining a plurality of forward code domain measurements and determining a maximum number of users such that the probability of exceeding a predetermined reverse noise rise is blow a threshold.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Stilwell. In particular, Stilwell teaches the provision of measuring code domain channels for values such as code domain power, timing, and phase (see column 1, lines 18-27).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to measure metrics such as power and timing in the forward link to determine capacity on that transmission medium. This can be implemented into the system of Zuniga by incorporating the CDMA base station testing methods as specified in the TIA IS-97 standards. The motivation for using the forward code domain measurement technique is that the waveform quality affects the characteristics of the code domain channels, which can in turn affect the system capacity.

Zuniga and Stilwell do not explicitly teach that the plurality of forward code domain measurements include a data set having a time stamp, a plurality of code IDs, and power levels for each code ID.

However, the above-mentioned claimed limitations are well-known in the art, as evidenced by da Silva. In particular, da Silva teaches the well-known features of CDMA, which include using a plurality of code domain measurements including power measurements (see "Walsh Code Domain Power" section) and having a plurality of code IDs (see "Walsh Code Domain Power" section, paragraph 2, 64 Walsh codes, IDs from 0 to 63) that are time dependent (see "Walsh Code Domain Timing" section, timing alignment is a part of Walsh code design, meaning that the codes are time stamped in the CDMA ASICs employed at the base station).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use code domain power and timing in order to effectively allow multiple traffic channels to exist on the same frequency band by performing constant code domain power and timing measurements.

Zuniga, Stilwell and da Silva do not explicitly teach that the method further comprises determining a maximum number of users such that the probability of exceeding a predetermined reverse noise rise is below a threshold.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Love. In particular, Love teaches the provision of determining the probability of an outage, or the probability of the noise rise exceeding a threshold at the base station (see paragraph 98).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to determine parameters at a base station based on a probability.

This can be accomplished by adding functionality to the base station that would be capable of calculating a probability from the measurements acquired. The motivation for such a combination is that the BS must predict how much noise will be accumulated as more and more users are connected.

Regarding claim 3, Zuniga, Stilwell, and da Silva do not explicitly teach of the step of determining the reverse noise floor being performed by obtaining reverse noise measurements during a period of inactivity. However, this step is inherent by definition: the reverse noise floor is the amount of reverse link noise when no communication is present, which means the only time to accurately measure noise floor is during a period of inactivity.

Regarding claim 4, Zuniga discloses determining reverse noise rise measurements by comparing the reverse noise measurements to the reverse noise rise (see paragraph 12 and equation 1).

Regarding claim 5, Zuniga, Stilwell, and Love do not explicitly teach that the forward code domain measurements and the reverse noise measurements are obtained substantially simultaneously. However, it is well known in the art to obtain different measurements at the same time.

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to obtain the measurements simultaneously. This can be done by having multiple measuring devices on the base station and enough buffer space to hold the collected measurement data. The motivation for collecting the different data metrics at the same time is that the results of the measurements would be needed at the same time for determining parameters that depend on those measurements.

Regarding claim 7, da Silva teaches that the plurality of forward code domain measurements is obtained from base station transceiver (see "Walsh code domain Power" section, paragraph 6, code domain power measurements are made on active base stations).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga in view of Stilwell, da Silva and Love as applied to claim 1 above, and further in view of Meyer et al. (previously cited US 6,236,866).

Regarding claim 2, Zuniga, Stilwell, da Silva and Love do not explicitly teach that the forward code domain measurements comprise the number of active forward links.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Meyer. In particular, Meyer teaches the provision of determining the number of users actively using the network (see column 4, lines 44-47).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to determine the number of active connections to the users. Determining the number of active connections can be implemented into the system by monitoring the system load or having a specific function built into the base station. The motivation for acquiring the number of active connections to the base station is to know how much interference each connected user is contributing to the total noise at the base station.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga in view of Stilwell, da Silva and Love as applied to claim 1 above, and further in view of Ishikawa et al. (newly cited US 5,838,671).

Regarding Claim 6, Zuniga, Stilwell, da Silva and Love do not explicitly teach that the step of determining a maximum number of users includes, using measurements corresponding to those at or below a specific number of active sessions, forming a ratio of the number of measurements having an RNR below 3 decibels to the number of measurements corresponding to those at or below the specific number of active sessions, And comparing the ratio to a confidence level.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Ishikawa. In particular, Ishikawa teaches a calculation and relationship between the number of users connectable to the base station and the interference threshold to determine a probability of blocking new users and a probability of an outage (see abstract).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to determine the capacity and call admission control schemes based on blocking and outage probabilities from measurements of simultaneous users connectable and interference ratios.

The motivation to combine these teachings is that as the number of users increases, the probability that adding another user to the base station will increase noise or decrease quality will increase, thus degrading the system.

8. Claims 9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga in view of Stilwell, Love and Ishikawa.

Regarding claim 9, Zuniga discloses a method comprising determining a reverse noise floor (see paragraph 26, lines 1-4), and obtaining reverse noise measurements (see paragraph 13, lines 1-5).

Regarding claim 9, Zuniga does not explicitly teach that the method further comprises modifying at least one system parameter, obtaining a plurality of forward code domain measurements and determining a maximum number of users such that the probability of exceeding a predetermined reverse noise rise is blow a threshold. However, it is well known in the art to adjust system parameters in a base station.

Regarding claim 9, Zuniga does not explicitly teach that the method further comprises obtaining a plurality of forward code domain measurements and determining a maximum number of users such that the probability of exceeding a predetermined reverse noise rise is blow a threshold. Stilwell teaches the provision of measuring code domain channels for values such as code domain power, timing, and phase (see column 1, lines 18-27).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to measure metrics such as power and timing in the forward link to determine capacity on that transmission medium. This can be implemented into the system of Zuniga by incorporating the CDMA base station testing methods as specified in the TIA IS-97 standards. The motivation for using the forward code domain measurement technique is that the waveform quality affects the characteristics of the code domain channels, which can in turn affect the system capacity.

Zuniga and Stilwell do not explicitly teach that the method further comprises determining a maximum number of users such that the probability of exceeding a predetermined reverse noise rise is below a threshold. Love teaches the provision of determining the probability of an outage, or the probability of the noise rise exceeding a threshold at the base station (see paragraph 98).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to determine parameters at a base station based on a probability. This can be accomplished by adding functionality to the base station that would be capable of calculating a probability from the measurements acquired. The motivation for such a combination is that the BS must predict how much noise will be accumulated as more and more users are connected.

Zuniga, Stilwell and Love do not explicitly teach that the step of determining a maximum number of users includes, using measurements corresponding to those at or below a specific number of active sessions, forming a ratio of the number of measurements having an RNR below 3 decibels to the number of measurements corresponding to those at or below the specific number of active sessions.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Ishikawa. In particular, Ishikawa teaches a calculation and relationship between the number of users connectable to the base station and the interference threshold to determine a probability of blocking new users and a probability of an outage (see abstract).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to determine the capacity and call admission control schemes based on blocking and outage probabilities from measurements of simultaneous users connectable and interference ratios.

The motivation to combine these teachings is that as the number of users increases, the probability that adding another user to the base station will increase noise or decrease quality will increase, thus degrading the system.

Regarding claim 11, Zuniga, Stilwell, Love and Ishikawa do not explicitly teach of the step of determining the reverse noise floor being performed by obtaining reverse noise measurements during a period of inactivity. However, this step is inherent by definition: the reverse noise floor is the amount of reverse link noise when no communication is present.

Regarding claim 12, Zuniga discloses determining reverse noise rise measurements by comparing the reverse noise measurements to the reverse noise rise (see paragraph 12 and equation 1).

Regarding claim 13, Zuniga, Stilwell, and Love do not explicitly teach that the forward code domain measurements and the reverse noise measurements are obtained substantially simultaneously. However, it is well known in the art to obtain different measurements at the same time.

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to obtain the measurements simultaneously. This can be done by having multiple measuring devices on the base station and enough buffer space to hold the collected measurement data. The motivation for collecting the different data metrics at the same time is that they will be used together in determining parameters that depend on those measurements.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga in view of Stilwell, Love and Ishikawa as applied to claim 9 above, and further in view of Meyer.

Regarding claim 10, Zuniga, Stilwell, and Love do not explicitly teach that the forward code domain measurements comprise the number of active forward links.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Meyer. In particular, Meyer teaches the provision of determining the number of users actively using the network (see column 4, lines 44-47).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to determine the number of active connections to the users. Determining the number of active connections can be implemented into the system by monitoring the system load or having a specific function built into the base station. The motivation for acquiring the number of active connections to the base station is to know how much interference each connected user is contributing to the total noise at the base station.

Regarding claim 14, Ishikawa that the step of determining a maximum number of users includes comparing the ratio to a confidence level. The confidence level can be interpreted as a certain level of probability, such as the probability calculated by Ishikawa.

10. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga in view of Stilwell, Love and Ishikawa as applied to claim 9 above, and further in view of da Silva.

Regarding claim 15, Zuniga, Stilwell, Love and Ishikawa do not explicitly teach that the plurality of forward code domain measurements is obtained from base station transceiver.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by da Silva. In particular, da Silva teaches that the plurality of forward code domain measurements is obtained from base station transceiver (see “Walsh code domain Power” section, paragraph 6, code domain power measurements are made on active base stations).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to take measurements of the forward code domain in the base station as the forward link originates at the base station.

Regarding claim 16, Zuniga, Stilwell, Love and Ishikawa do not explicitly teach that the plurality of forward code domain measurements include a data set having a time stamp, a plurality of code IDs, and power levels for each code ID.

However, the above-mentioned claimed limitations are well-known in the art, as evidenced by da Silva. In particular, da Silva teaches the well-known features of CDMA, which include using a plurality of code domain measurements including power measurements (see “Walsh Code Domain Power” section) and having a plurality of code IDs (see “Walsh Code Domain Power” section, paragraph 2, 64 Walsh codes, IDs from 0 to 63) that are time dependent (see “Walsh Code Domain Timing” section, timing alignment is a part of Walsh code design, meaning that the codes are time stamped in the CDMA ASICs employed at the base station).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use code domain power and timing in order to effectively allow multiple traffic channels to exist on the same frequency band by performing constant code domain power and timing measurements.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga in view of Stilwell, Love and Ishikawa as applied to claim 9 above, and further in view of Meyer.

Regarding claim 17, Zuniga, Stilwell, Love and Ishikawa do not explicitly teach that at least one system parameter is a power control parameter. Meyer teaches the provision of

utilizing system parameters such as power control, transmission rate, and soft handoff algorithm in the base station (see column 2, lines 9-15).

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a system parameter designating power control values in a base station. The power control parameter can be used by the base station to help determine number of user or coverage area of the base station. The motivation for using a power control parameter in the base station is that it can help alleviate the near-far problem, among others.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga, Stilwell and Love in view of Ishikawa as applied to claim 9 above, and further in view of the background of Ghandi et al. (US 2003/0022630).

Regarding claim 18, Zuniga, Stilwell, Love and Ishikawa do not explicitly teach that at least one system parameter is a mobile access probe. Ghandi, from the same field of endeavor teaches the provision of including an access probe parameter into determining the output power at the mobile station.

In view of the above, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use an access probe system parameter in a base station. This parameter can be implemented into the system by receiving the output power of the mobile station during the access probe period when the mobile station attempts to access the base station. The motivation for using this system parameter is that the access probe transmission contributes to interference and noise, which must be accounted for.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis A. Alia whose telephone number is (571)270-3116. The examiner can normally be reached on Monday through Friday, 8am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on (571) 272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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2/29/2008

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